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## **WEST Search History**



DATE: Monday, April 26, 2004

Hide?	Set Nam	e Query	Hit Count
	DB=PG	SPB, USPT; PLUR=YES; OP=ADJ	
	L15	19890811	235
	L14	L13 and 110	9164
	L13	L11 and (bacillus or bacill\$7)	17992
	L12	L11 and (alkaline or alkal\$7)	34247
	L11	protease or proteinase	59497
	Ļ10	L9 or 18 or 17 or 16 or 15 or 14 or 13 or 12 or 11	31590
	L9	(536/23.2)!.ccls.	10770
	L8	(435/463)!.ccls.	228
	L7	(435/440)!.ccls.	616
	L6	(435/320.1)!.ccls.	23353
	L5	(435/252.31)!.ccls.	705
	L4	(435/252.3)!.ccls.	8089
	L3	(435/219)!.ccls.	918
	L2	(435/212)!.ccls.	778
	L1	(435/69.1)!.ccls.	17404

END OF SEARCH HISTORY

h eb b cg b chh e f f c e cf

L19 ANSWER 1 OF 30 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1991:443482 HCAPLUS

Correction of: 1985:180203

115:43482 DOCUMENT NUMBER:

Correction of: 102:180203

Recombinant manufacture of prokaryotic carbonyl TITLE:

hydrolases for use in detergents

Bott, Richard Ray; Ferrari, Eugenio; Wells, James Allen; Estell, David Aaron; Henner, Dennis James INVENTOR(S):

Genentech, Inc., USA PATENT ASSIGNEE(S): Eur. Pat. Appl., 79 pp. SOURCE:

CODEN: EPXXDW

DOCUMENT TYPE:

Patent

LANGUAGE:

English -

FAMILY ACC. NUM. COUNT: 6

PATENT INFORMATION:

PATENT NO.	KIND	DATE		APPLICATION NO.	DATE	
EP 130756	 A1	19850109		EP 1984-304252	19840622	<i></i>
EP 130756	B1	19910206		21 1301 301232	17010022	
EP 130756	B2	20000628				
			IT.	LI, LU, NL, SE		
US 4760025	Α	19880726	,	US 1984-614612	19840529	<
AU 8429568	A1	19850103		AU 1984-29568	19840620	
AU 587960	В2	19890907				
ZA 8404716	Α	19850227		ZA 1984-4716	19840621	<
DK 8403059	Α	19850218		DK 1984-3059	19840622	<
JP 60070075	A2	19850420		JP 1984-129928	19840622	<
ES 533645	A1	19860216		ES 1984-533645	19840622	<
EP 246678	A1	19871125		EP 1987-200690	19840622	<
EP 246678	B1	19930428				
R: AT, BE,	CH, DE	, FR, GB,	IT,	LI, LU, NL, SE		
EP 247647	A1	19871202		EP 1987-200689	19840622	<
EP 247647	B1	19910123				
R: AT, BE,	CH, DE	, FR, GB,	ΙT,	LI, LU, NL, SE		
EP 357157	A2	19900307		EP 1989-202584	19840622	
EP 357157	A3	19900328				
R: AT, BE,	CH, DE	, FR, GB,	ΙT,	LI, LU, NL, SE		
AT 60797	E	19910215		AT 1984-304252	19840622	
AT 60356	E	19910215		AT 1987-200689	19840622	
AT 88750	E	19930515		AT 1987-200690	19840622	
ES 545148	A1	19860716		ES 1985-545148	19850712	
ES 545147	A1	19861216		ES 1985-545147	19850712	<
AU 8937149	A1	19891123		AU 1989-37149	19890628	
AU 631797	B2	19921210				
AU 8937208	A1	19891207		AU 1989-37208	19890629	
AU 636109	B2	19930422				
US 5441882	A	19950815		US 1990-521010	19900509	
US 34606	Е	19940510		US 1990-556918	19900720	
US 5310675	A	19940510		US 1991-805605	19911210	
US 5244791	A	19930914		US 1992-902542	19920622	
US 5352594	A	19941004		US 1992-908596	19920630	
US 5411873	A	19950502		US 1992-928697	19920811	
US 5346823	A	19940913		US 1993-36592	19930324	
DK 9300822	A	19930708		DK 1993-822	19930708	
DK 9300823	A	19930708		DK 1993-823	19930708	
US 5371008	A	19941206		US 1993-90472	19930712	
US 5371190	A	19941206		US 1993-90902	19930712	
JP 06315378	A2	19941115		JP 1993-244837	19930930	
JP 06319534	A2	19941122		JP 1993-244823	19930930	
JP 2889095	B2	19990510				

L19 ANSWER 2 OF 30 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER:

1990:453297 HCAPLUS

DOCUMENT NUMBER:

113:53297

TITLE:

Construction of a Bacillus subtilis mutant-

deficient in three extracellular

proteases

AUTHOR (S):

Wang, Lin Fa; Bruckner, Reinhold; Doi, Roy H.

CORPORATE SOURCE:

Dep. Biochem. Biophys., Univ. California, Davis, CA,

95616, USA

SOURCE:

Journal of General and Applied Microbiology (

**1989**), 35(6), 487-92

CODEN: JGAMA9; ISSN: 0022-1260

DOCUMENT TYPE:

Journal

LANGUAGE:

English

AB The extracellular neutral proteinase gene nprE, alkaline proteinase gene aprE, and serine proteinase gene epr were sequentially mutated in B. subtilis. Site-specific mutagenesis was used in isolation of the triple mutant which produced .apprx.1% of extracellular proteinase of the wild-type.

TI Construction of a Bacillus subtilis mutant-deficient

in three extracellular proteases

L19 ANSWER 5 OF 30 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER:

1989:133717 HCAPLUS

DOCUMENT NUMBER:

110:133717

TITLE:

Bacillus subtilis mutants with decreased extracellular

protease activity, and protein manufacture and

secretion with these strains

INVENTOR(S):

Furutani, Yoshio; Honjo, Masaru; Nakayama, Akira; Kawamurs, Koichi; Shimada, Hiroaki; Mita, Izumi;

Akaoka, Akiko

PATENT ASSIGNEE(S):

Agency of Industrial Sciences and Technology, Japan

SOURCE:

Fr. Demande, 23 pp. CODEN: FRXXBL

DOCUMENT TYPE:

Patent

LANGUAGE:

French

FAMILY ACC. NUM. COUNT:

PATENT INFORMATION:

	PAT	ENT NO.	KIND	DATE		API	PLICATION NO.	DATE	
	FR	2604726	A1	19880408		FR	1987-13672	19871002	<
	FR	2604726	B1	19901221					
•	JP	63087975	A2	19880419		JΡ	1986-233285	19861002	<
	JΡ	05022508	B4	19930329					
	GB	2198439	A1	19880615		GB	1987-23033	19871001	<
	GB	2198439	B2	19901010					
	US	5084383	Α	19920128		US	1990-553356	19900718	
	JΡ	07298894	A2	19951114		JР	1992-301635	19921015	
	JP	2857730	B2	19990217					
PRIOR	RITY	APPLN. INFO.	:		JP	198	36-233285	19861002	
					US	198	37-102439	19870929	

AB A B. subtilis strain with decreased extracellular protease activity is produced by inserting a Bacillus gene for stimulation of extracellular protease levels into the genomic DNA of a strain which already displays reduced extracellular protease activity is thereby reduced still further. This strain is used for high-level production of proteins, e.g. human growth hormone. B. subtilis MT-400, a strain deficient in neutral and alkaline extracellular proteases, was transformed with pNP181, a plasmid containing a gene which stimulates level of extracellular proteases. Strain MT-430, in which the gene had been integrated into the B. subtilis genome, was isolated. A plasmid containing the human growth hormone gene inserted into the neutral extracellular protease gene of B. amyloliquefaciens (phGH427) was prepared Strain MT-430 transformed with this plasmid produced 205 mg growth hormone/L culture.

TI Bacillus subtilis mutants with decreased extracellular protease activity, and protein manufacture and secretion with these strains

L19 ANSWER 6 OF 30 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER:

PATENT ASSIGNEE(S):

1989:129892 HCAPLUS

DOCUMENT NUMBER:

110:129892

TITLE:

Production by recombinant DNA techniques of thermo-

and pH-stable subtilisin analogs

INVENTOR(S): Stabinsky, Yitzhak; Zukowski, Mark M.

AMGEN, USA

SOURCE:

PCT Int. Appl., 57 pp.

CODEN: PIXXD2

DOCUMENT TYPE:

Patent

LANGUAGE:

English

1

FAMILY ACC. NUM. COUNT:

PATENT INFORMATION:

WO 8704461 A1 19870730 WO 1987-US27 19870107 < W: AU, DK, FI, JP, NO RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE  AU 8769398 A1 19870814 AU 1987-69398 19870107 < AU 604476 B2 19901220 EP 254735 B1 19910619 EP 254735 B2 19980617 R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE  JP 63502396 T2 19880914 JP 1987-500857 19870107 < AT 64617 E 19910715 AT 1987-900930 19870107 DK 8704765 A 19870911 DK 1987-4765 19870911 < FI 8703980 A 19870914 FI 1987-3980 19870914 < NO 8703839 A 19871116 NO 1987-3839 19870914 < NO 176844 B 19950227 NO 176844 C 19950607 US 5399283 A 19950321 US 1991-637972 19910109 PRIORITY APPLN. INFO::  US 1986-819241 19860115 EP 1987-900930 19870107 WO 1987-US27 19870107		KIND DATE		DATE
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AU 8769398 A1 19870814 AU 1987-69398 19870107 < AU 604476 B2 19901220  EP 254735 A1 19880203 EP 1987-900930 19870107 < EP 254735 B1 19910619  EP 254735 B2 19980617  R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE  JP 63502396 T2 19880914 JP 1987-500857 19870107 < AT 64617 E 19910715 AT 1987-900930 19870107  DK 8704765 A 19870911 DK 1987-4765 19870911 < FI 8703980 A 19870914 FI 1987-3980 19870914 < NO 8703839 A 19871116 NO 1987-3839 19870914 < NO 176844 B 19950227 NO 176844 C 19950607 US 5399283 A 19950321 US 1991-637972 19910109  PRIORITY APPLN. INFO::  US 1986-819241 19860115 EP 1987-900930 19870107			IT. LU. NL. SE	
AU 604476 B2 19901220 EP 254735 A1 19880203 EP 1987-900930 19870107 < EP 254735 B1 19910619 EP 254735 B2 19980617 R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE  JP 63502396 T2 19880914 JP 1987-500857 19870107 < AT 64617 E 19910715 AT 1987-900930 19870107 DK 8704765 A 19870911 DK 1987-4765 19870911 < FI 8703980 A 19870914 FI 1987-3980 19870914 < NO 8703839 A 19871116 NO 1987-3839 19870914 < NO 176844 B 19950227 NO 176844 C 19950607 US 5399283 A 19950321 US 1991-637972 19910109 PRIORITY APPLN. INFO.:  US 1986-819241 19860115 EP 1987-900930 19870107				19870107 <
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EP 254735 B2 19980617 R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE  JP 63502396 T2 19880914 JP 1987-500857 19870107 < AT 64617 E 19910715 AT 1987-900930 19870107  DK 8704765 A 19870911 DK 1987-4765 19870911 < FI 8703980 A 19870914 FI 1987-3980 19870914 < NO 8703839 A 19871116 NO 1987-3839 19870914 < NO 176844 B 19950227 NO 176844 C 19950607 US 5399283 A 19950321 US 1991-637972 19910109  PRIORITY APPLN. INFO.: US 1986-819241 19860115 EP 1987-900930 19870107	EP 254735	A1 19880203	EP 1987-900930	19870107 <
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JP 63502396 T2 19880914 JP 1987-500857 19870107 < AT 64617 E 19910715 AT 1987-900930 19870107 < DK 8704765 A 19870911 DK 1987-4765 19870911 < FI 8703980 A 19870914 FI 1987-3980 19870914 < NO 8703839 A 19871116 NO 1987-3839 19870914 < NO 176844 B 19950227 NO 176844 C 19950607 US 5399283 A 19950321 US 1991-637972 19910109  PRIORITY APPLN. INFO.:  US 1986-819241 19860115 EP 1987-900930 19870107	EP 254735	B2 19980617		
AT 64617 E 19910715 AT 1987-900930 19870107  DK 8704765 A 19870911 DK 1987-4765 19870911 < FI 8703980 A 19870914 FI 1987-3980 19870914 < NO 8703839 A 19871116 NO 1987-3839 19870914 < NO 176844 B 19950227 NO 176844 C 19950607 US 5399283 A 19950321 US 1991-637972 19910109  PRIORITY APPLN. INFO:: US 1986-819241 19860115 EP 1987-900930 19870107				
DK 8704765 A 19870911 DK 1987-4765 19870911 < FI 8703980 A 19870914 FI 1987-3980 19870914 < NO 8703839 A 19871116 NO 1987-3839 19870914 < NO 176844 B 19950227 NO 176844 C 19950607 US 5399283 A 19950321 US 1991-637972 19910109 PRIORITY APPLN. INFO.: US 1986-819241 19860115 EP 1987-900930 19870107				
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NO 8703839 A 19871116 NO 1987-3839 19870914 < NO 176844 B 19950227 NO 176844 C 19950607 US 5399283 A 19950321 US 1991-637972 19910109 PRIORITY APPLN. INFO.: US 1986-819241 19860115 EP 1987-900930 19870107	DK 8704765	A 19870911	DK 1987-4765	19870911 <
NO 176844 B 19950227 NO 176844 C 19950607 US 5399283 A 19950321 US 1991-637972 19910109 PRIORITY APPLN. INFO.: US 1986-819241 19860115 EP 1987-900930 19870107	FI 8703980 .	A 19870914	FI 1987-3980	19870914 <
NO 176844 C 19950607 US 5399283 A 19950321 US 1991-637972 19910109 PRIORITY APPLN. INFO.: US 1986-819241 19860115 EP 1987-900930 19870107	NO 8703839	A 19871116	NO 1987-3839	19870914 <
US 5399283 A 19950321 US 1991-637972 19910109 PRIORITY APPLN. INFO.: US 1986-819241 19860115 EP 1987-900930 19870107	NO 176844	B 19950227		
PRIORITY APPLN. INFO.: US 1986-819241 19860115 EP 1987-900930 19870107	NO 176844	C 19950607		
EP 1987-900930 19870107	US 5399283	A 19950321	US 1991-637972	19910109
	PRIORITY APPLN. INFO	.:	US 1986-819241	19860115
WO 1987-US27 19870107			EP 1987-900930	19870107
			WO 1987-US27	19870107
US 1988-193233 19880506			US 1988-193233	19880506
US 1989-366357 19890615				19890615

- AB Mutated subtilisin having improved pH and thermal stability useful in washing composition formulation is provided where the sequence Asn-Gly in the enzyme is altered by deletion, or replacement with another amino acid, of one or both of the residues. Plasmids pAMB113 and pAMB301 were constructed containing a mutated (by site-specific mutagenesis) Bacillus subtilis aprA gene (where the asparagine in position 218 is replaced with serine) for transformation of, or integration into the chromosome of, a B. subtilis mutant deficient in secreting proteases other than the recombinant subtilisin. The recombinant subtilisin showed ≥3-fold increase in stability at pH 10 and also at 60°.
- Production by recombinant DNA techniques of thermo- and pH-stable subtilisin analogs

ACCESSION NUMBER: 1988:523812 HCAPLUS

109:123812 DOCUMENT NUMBER:

Cloning and expression of calf stomach prochymosin TITLE:

cDNA in Bacillus

INVENTOR(S): Hofemeister, Juergen; Hofemeister, Brigitte; Speter,

Wolfgang; Liebscher, Dierck Hartmut; Steinborn,

Gerhard

L19 ANSWER 7 OF 30 HCAPLUS COPYRIGHT 2004 ACS on STN

Akademie der Wissenschaften der DDR, Ger. Dem. Rep. PATENT ASSIGNEE(S):

Ger. (East), 8 pp. SOURCE:

CODEN: GEXXA8

DOCUMENT TYPE: LANGUAGE:

Patent German

FAMILY ACC. NUM. COUNT:

PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

------ - **-** ----------------19880127 DD 1985-273094 19850207 <--DD 253641 A1

DD 1985-273094 PRIORITY APPLN. INFO.: 19850207

Recombinant calf stomach prochymosin is produced by Bacillus transformed with a plasmid containing prochymosin cDNA under control of a promoter from B. amyloliquefaciens, was constructed. Proteasedeficient B. subtilis transformed with this plasmid produced protein which was recognized by anti-chymosin antibody and which displayed milk-clotting activities. This process provides a ready source of

chymosin for cheese-making.

TI Cloning and expression of calf stomach prochymosin cDNA in Bacillus

US 5972682 A 19991026 US 1994-212291 19940314 US 5472855 A 19951205 US 1995-432279 19950501 US 5939315 A 19990817 US 1995-48096 19950607 US 5652136 A 19970729 US 1995-48096 19950607 US 5700676 A 19971223 US 1995-485375 19950607 US 5801038 A 19980901 US 1995-485375 19950607 US 5801038 A 19980901 US 1995-485313 19950607 US 6465235 B1 20021015 US 1995-485313 19950607 US 6465235 B1 20021015 US 1995-485313 19950607 US 6465235 B1 20021015 US 1997-994032 19971218 PRIORITY APPLN. INFO.:  VS 1984-614611 A 19840529 US 1984-614615 A 19840529 US 1984-614616 A 19840529 US 1984-614616 A 19840529 US 1984-614616 A 19840529 US 1984-614617 A 19840529 US 1984-614617 A 19840529 US 1984-614617 A 19840529 US 1984-614617 A 19840529 US 1986-866389 B1 19840622 EP 1987-200689 A 19840622 EP 1987-200689 A 19840622 EP 1987-200690 A 19840622 EP 1987-200690 A 19840622 US 1986-866389 B1 19860401 US 1986-866389 B1 19860520 US 1986-866389 B1 19860520 US 1987-92976 B1 19870831 US 1989-334081 A1 19900509 US 1989-340881 A1 19900509 US 1999-5488433 B1 19900227 US 1990-540868 B1 19900515 US 1999-5428039 B3 19920114 US 1999-280999 B1 19900614 US 1999-280999 B1 19920069 US 1999-280999 B1 19920069								
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US 5652136 A 19970729 US 1995-488096 19950607 US 5700676 A 19971223 US 1995-486746 19950607 US 5763257 A 19980609 US 1995-485375 19950607 US 5801038 A 19980901 US 1995-485827 19950607 US 5955340 A 19990921 US 1995-485313 19950607 US 6465235 B1 20021015 US 1995-485313 19950607 US 6465235 B1 20021015 US 1997-94032 19971218 PRIORITY APPLN. INFO.:  US 1984-614491 A 19840529 US 1984-614615 A 19840529 US 1984-614616 A 19840529 US 1984-614616 A 19840529 US 1984-614616 A 19840529 US 1984-614616 A 19840529 US 1984-614617 A 19840529 EP 1987-200689 A 19840622 EP 1987-200689 A 19840622 EP 1987-200689 A 19840622 EP 1987-200689 B1 19860401 US 1986-866389 B1 19860430 US 1986-866389 B1 19860430 US 1986-866389 B1 19860430 US 1987-35652 B2 19870806 US 1987-35652 B2 19870806 US 1987-9235 B1 19870831 US 1987-9236 B1 19870831 US 1987-92376 B1 19880314 US 1989-334081 A1 19890404 US 1989-334081 A1 19890404 US 1989-334081 A1 19890404 US 1989-352326 B1 19870831 US 1990-521010 A1 19900509 US 1990-521010 A1 19900509 US 1991-668311 B1 19910311 US 1991-66831 B1 19900217 US 1992-99999 B1 19920707 US 1992-99999 B1 19920812							_	
US 570676 A 19971223 US 1995-486746 19950607 US 5763257 A 19980607 US 5801038 A 19980901 US 1995-485375 19950607 US 5955340 A 19980901 US 1995-485313 19950607 US 6465235 B1 20021015 US 1997-994032 19971218  PRIORITY APPLN. INFO:  US 1984-614612 A 19840529 US 1984-614612 A 19840529 US 1984-614616 A 19840529 US 1984-614616 A 19840529 US 1984-614616 A 19840529 US 1984-614617 A 19840529 US 1984-614617 A 19840622 EP 1987-200690 A 19840622 EP 1987-200690 A 19840622 EP 1987-200690 A 19840622 EP 1987-200690 B 19860401 US 1986-856594 B2 19860401 US 1986-866389 B1 19860401 US 1986-866389 B1 19860401 US 1987-35652 B2 19870831 US 1987-91235 B1 19870831 US 1987-92976 B1 19870831 US 1987-20736 B1 19870831 US 1987-20734 B2 19870831 US 1988-287316 B1 19870831 US 1989-3334081 A1 19890404 US 1989-352366 B1 19890515 US 1990-5488433 B1 199900509 US 1990-540868 B1 19800509 US 1990-540868 B1 19900509 US 1990-540868 B1 19900509 US 1991-668311 B1 19910812 US 1992-909999 B1 19920707 US 1992-909999 B1 19920812							-	
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AB Carbonyl hydrolase genes of **Bacillus** subtilis and B. anyloliquefaciens are cloned and expressed, optionally after mutagenesis, in appropriate host cells, e.g. **protease-deficient** B. subtilis. B. subtilis subtilisin and neutral metalloproteinase genes and B. amyloliquefaciens subtilisin gene were cloned. The B. amyloliquefaciens gene was mutated and expressed in B. subtilis to produce subtilisins with altered substrate specificity, oxidation stability, and/or pH activity profile. These enzymes are useful in detergent compns. B. subtilis mutants lacking functional subtilisin and neutral **proteinase** genes were prepared

TI Recombinant manufacture of prokaryotic carbonyl hydrolases for use in detergents

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DOCUMENT NUMBER:

106:132978

TITLE:

Protease-deficient

Bacillus subtilis host strains for production

of staphylococcal protein A

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AB Strains of B. subtilis were constructed which produced very low levels of extracellular proteases. These strains carried insertion or deletion mutations in the subtilisin [9014-01-1] structural gene (apr) which were constructed in vitro by using the cloned gene. The methods used to construct the mutations involved the use of plasmid vector which allowed the selection of chromosomal integrates and their subsequent excision by homologous recombination to effect replacement of the chromosomal apr gene by a derivative carrying an inactivating insert with a selectable marker (a cat gene conferring chloramphenicol resistance). The strains produced no subtilisin, no detectable extracellular metalloprotease activity, and residual extracellular serine protease levels as low as 0.5% of that of the standard strain from which they were derived. The strains proved to be superior host strains for the production of staphylococcal protein A, accumulating higher levels of intact protein than do previously available B. subtilis strains.

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